

What is claimed is:

- [Claim 1]** 1. A plasma cutting torch comprising:
a torch body; and
a torch head having a restricted pivotable connection to the torch body and configured to generate a cutting arc at a plurality of angles relative to the torch body.
- [Claim 2]** 2. The plasma cutting torch of claim 1 wherein the restricted pivotable connection includes an infinitely variable connection limited to two axes.
- [Claim 3]** 3. The plasma cutting torch of claim 1 wherein the restricted pivotable connection includes a plurality of predefined set points.
- [Claim 4]** 4. The plasma cutting torch of claim 3 further comprising an index mechanism disposed between the torch body and the torch head and constructed to indicate position of the torch head relative to the torch body at each predefined set point.
- [Claim 5]** 5. The plasma cutting torch of claim 3 wherein the torch head is pivotable about no more than two axes.
- [Claim 6]** 6. The plasma cutting torch of claim 1 wherein the torch head pivots from a position generally aligned with an axis of the torch body to a position generally transverse to the axis of torch body.
- [Claim 7]** 7. The plasma cutting torch of claim 1 wherein the torch head is pivotable from approximately 75 degrees through to 180 degrees.
- [Claim 8]** 8. The plasma cutting torch of claim 1 further comprising an electrode disposed within the torch head.
- [Claim 9]** 9. The plasma cutting torch of claim 8 further comprising a cup removably attached to the torch head and constructed to center the electrode therein.
- [Claim 10]** 10. A plasma cutting assembly comprising:
a power source;
a plasma torch electrically connectable to the power source; and
a multi-position head ratchetably connected to the plasma torch.
- [Claim 11]** 11. The plasma cutting assembly of claim 10 further comprising an electrode positioned in the multi-position head and in electrical communication with the power source when the plasma torch is connected thereto.
- [Claim 12]** 12. The plasma cutting assembly of claim 10 further comprising a hinge connecting the multi-position head and the plasma torch.
- [Claim 13]** 13. The plasma cutting assembly of claim 12 further comprising a ratchet mechanism constructed to secure the multi-position head at predetermined positions relative to the plasma torch.

[Claim 14] 14. The plasma cutting assembly of claim 13 wherein the ratchet mechanism provides restricted ratchetable rotation of the multi-position head from 90 degrees relative to the plasma torch, 135 degrees relative to the plasma torch, 170 degrees relative to the plasma torch, and 180 degrees relative to the plasma torch.

[Claim 15] 15. The plasma cutting assembly of claim 10 wherein the plasma torch and multi-position head are in a common plane through a range of rotation of the multi-position head.

[Claim 16] 16. The plasma cutting assembly of claim 10 further comprising a cap connected to an end of the multi-position head generally opposite an end of the multi-position head connected to the torch and constructed to removably secure an electrode in the multi-position head.

[Claim 17] 17. A plasma torch comprising:
a handle portion and a work tip portion; and
means for providing restricted adjustment of a position of the work tip portion relative to the handle portion when the work tip portion is connected to the handle portion.

[Claim 18] 18. The plasma torch of claim 17 further comprising a locking assembly constructed to fix the means for providing restricted adjustment thereby fixing a position of the work tip portion relative to the handle portion at a plurality of predetermined positions.

[Claim 19] 19. The plasma torch of claim 17 further comprising an electrode disposed in the work tip portion of plasma torch and electrically connected to a power source through a plurality of work tip positions.

[Claim 20] 20. The plasma torch of claim 17 wherein the plasma torch is any one of a contact start plasma torch, a high frequency start plasma torch, and a high voltage start plasma torch.

[Claim 21] 21. The plasma torch of claim 17 wherein the work tip portion has a range of motion between generally aligned with an axis of the handle portion and generally transverse to the handle portion.

[Claim 22] 22. The plasma torch of claim 17 wherein the means for providing restricted adjustment is at least one of a hinge joint, a ball and socket joint, and a pin joint.

[Claim 23] 23. The plasma torch of claim 17 wherein the means for providing restricted adjustment includes adjustment in no more than two axes.

[Claim 24] 24. The plasma torch of claim 17 wherein the means for providing restricted adjustment includes adjustment from one predefined position to another predefined position.